2006 Interferometry Imaging Beauty Contest

P.R. Lawson (JPL), W.D. Cotton (NRAO), C.A. Hummel (ESO)
M. Ireland (Caltech), J.D. Monnier (Univ. of Michigan)
F. Baron, J.S. Young (Univ. of Cambridge)
E.M. Thiebaut (CRAL / Obs. Lyon), Sridharan Rengaswamy (STScI)
S. Kraus, K.-H. Hoffman, G.P. Weigelt (MPIfR, Bonn)
O. Chesneau (Obs. Cote d'Azur)

Advances in Stellar Interferometry
15:15 hrs, Monday, 29 May 2006

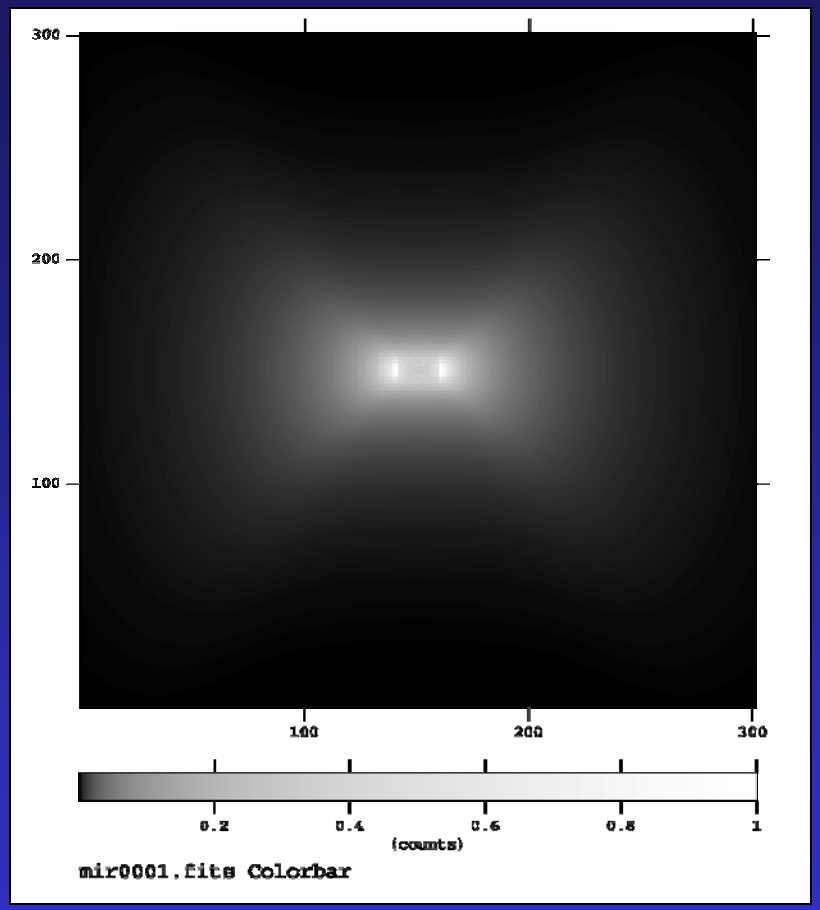
Motivation & Framework for the Contest

- Promote the use of the OI-FITS data format; identify problems in its definition, and revise it as necessary
- Engage the interferometry community in a formal assessment of existing imaging software.
- Encourage the development of new software tailored to the needs of optical interferometry.

Overview of Entries and Contestants

- Optical interferometry software – Bayesian methods
  - BSMEM — H. Thorsteinsson, J. Young
  - MIRA — E. Thiebaut
  - MACIM — M. Ireland, J. Monnier
  - Building Block Method — Stefan Kraus, K.-H. Hoffman, G. Weigelt
  - Recursive Phase Reconstruction — Sridharan Rengaswamy
- Not represented: WISARD, CITVLB, VLBMEM, Difmap, AIPS, AIPS++, Oyster

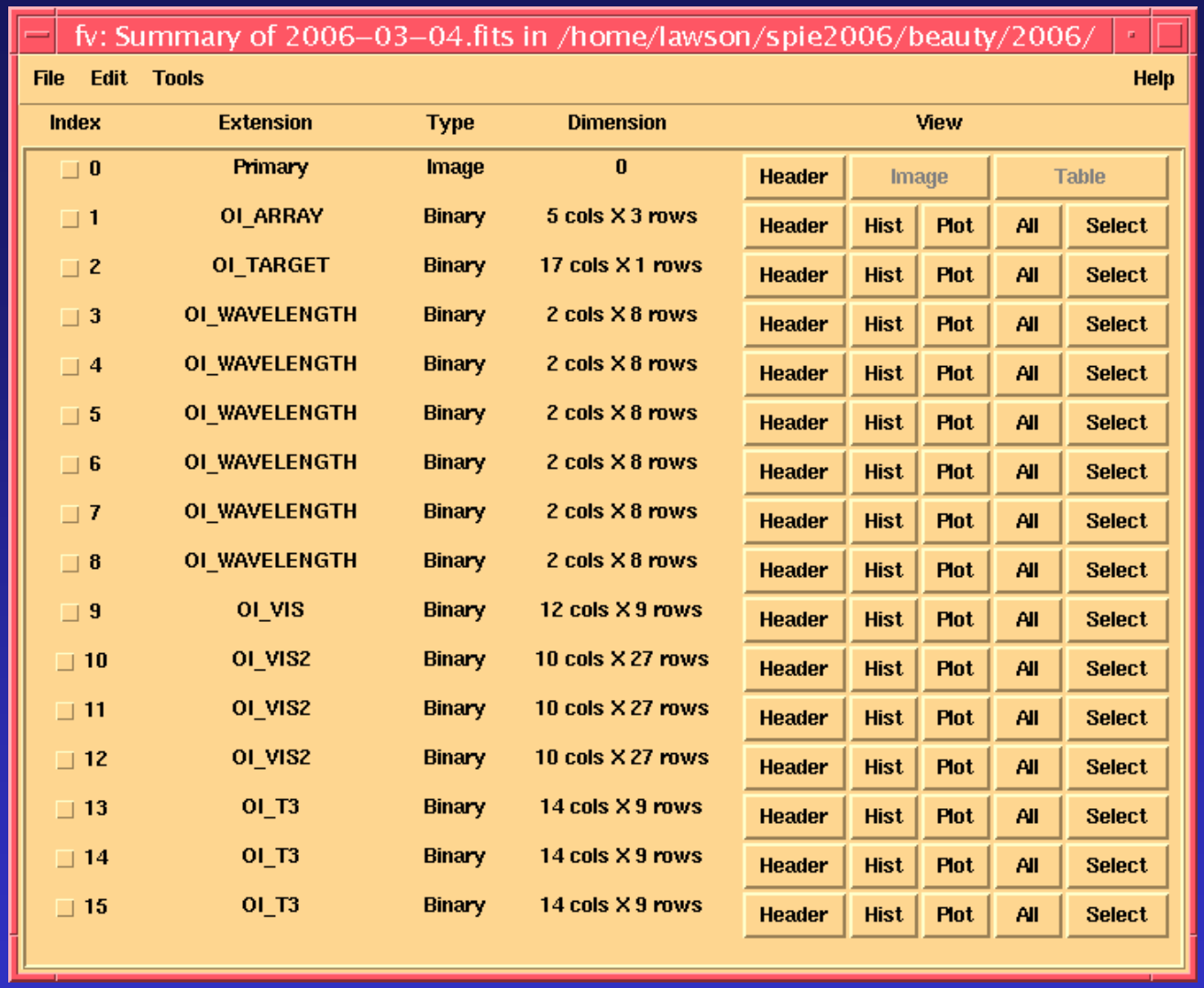
Contest Data



301 x 301 (0.05 mas) pixels
Sampled by 3-beam AMBER

- Thin disk model provided by Olivier Chesneau
- 4 nights of Earth-rotation synthesis with AMBER
- JHK mode with the 4 Unit Telescopes: (1,2,3), (1,2,4), (1,3,4), and (2,3,4)
- Considered by Christian Hummel to be a “really hard” model
- No correlated noise
- No wavelength dependence

OI-FITS Data

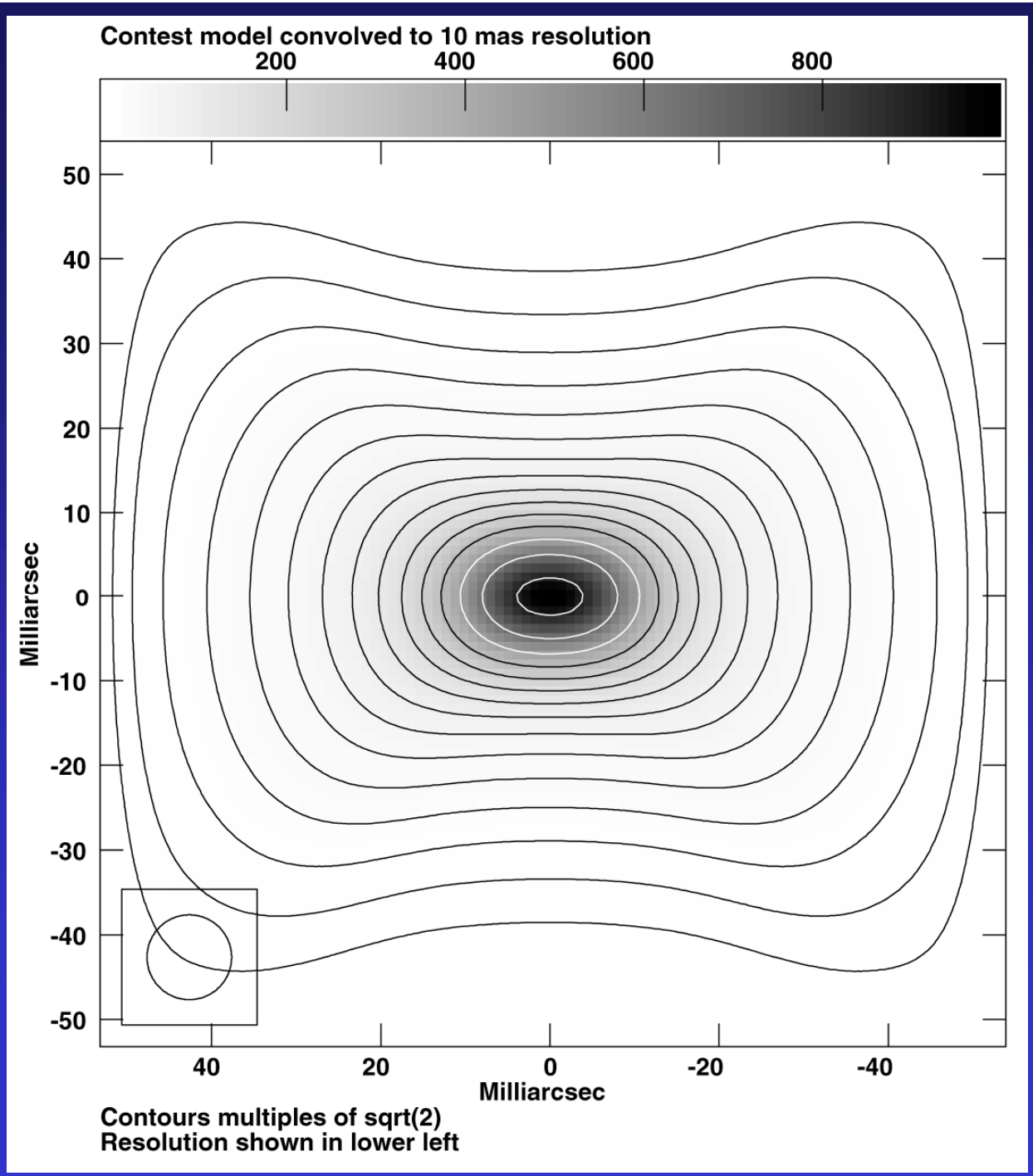


6 stations: 15 baselines, 10 triplets

13 timestamps: 195 *u-v* points, 130 closure phases

The Clue

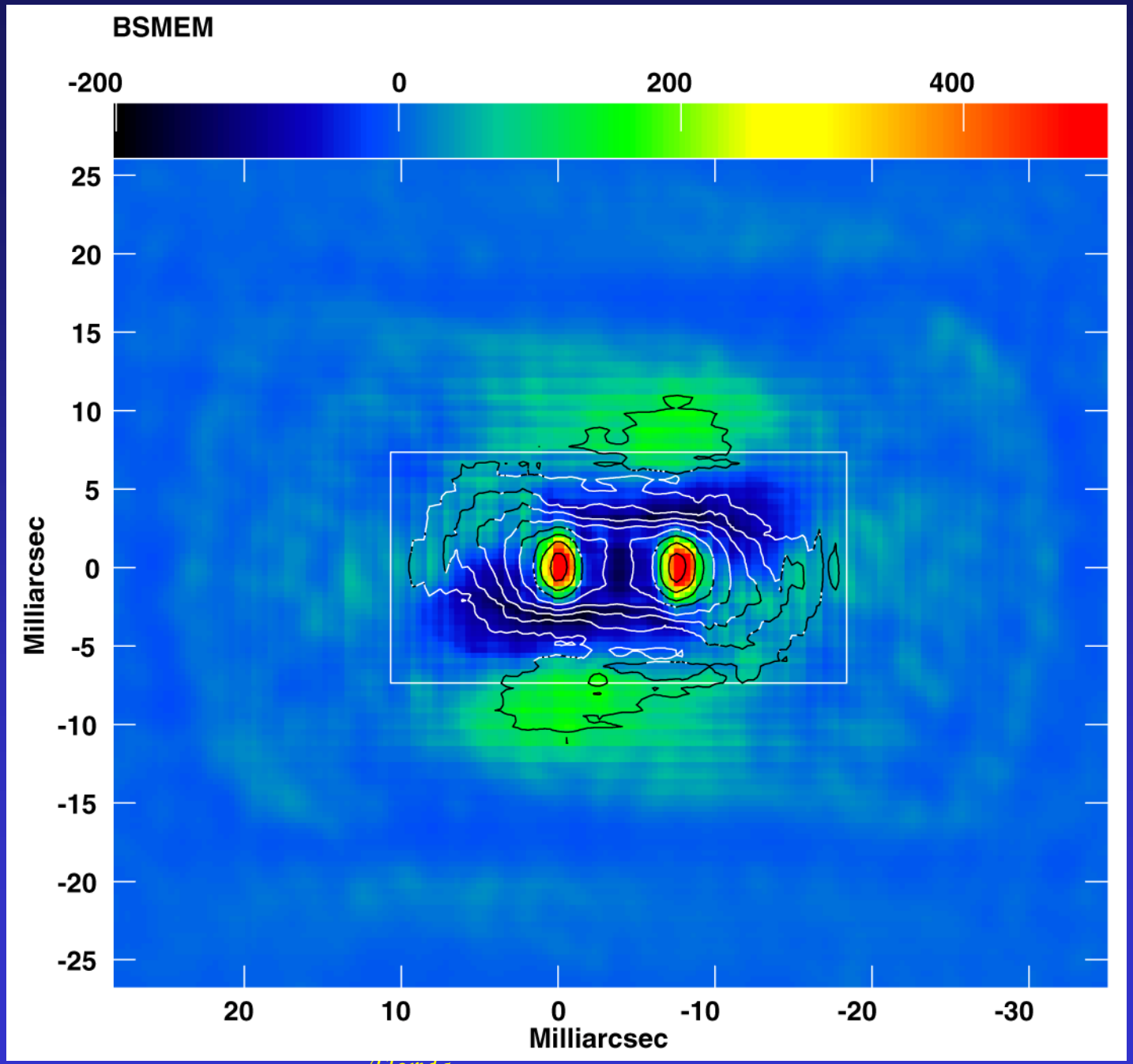
The contest model convolved to 10 mas resolution



BSMEM

Fabien Baron
John Young

(Cambridge Univ)



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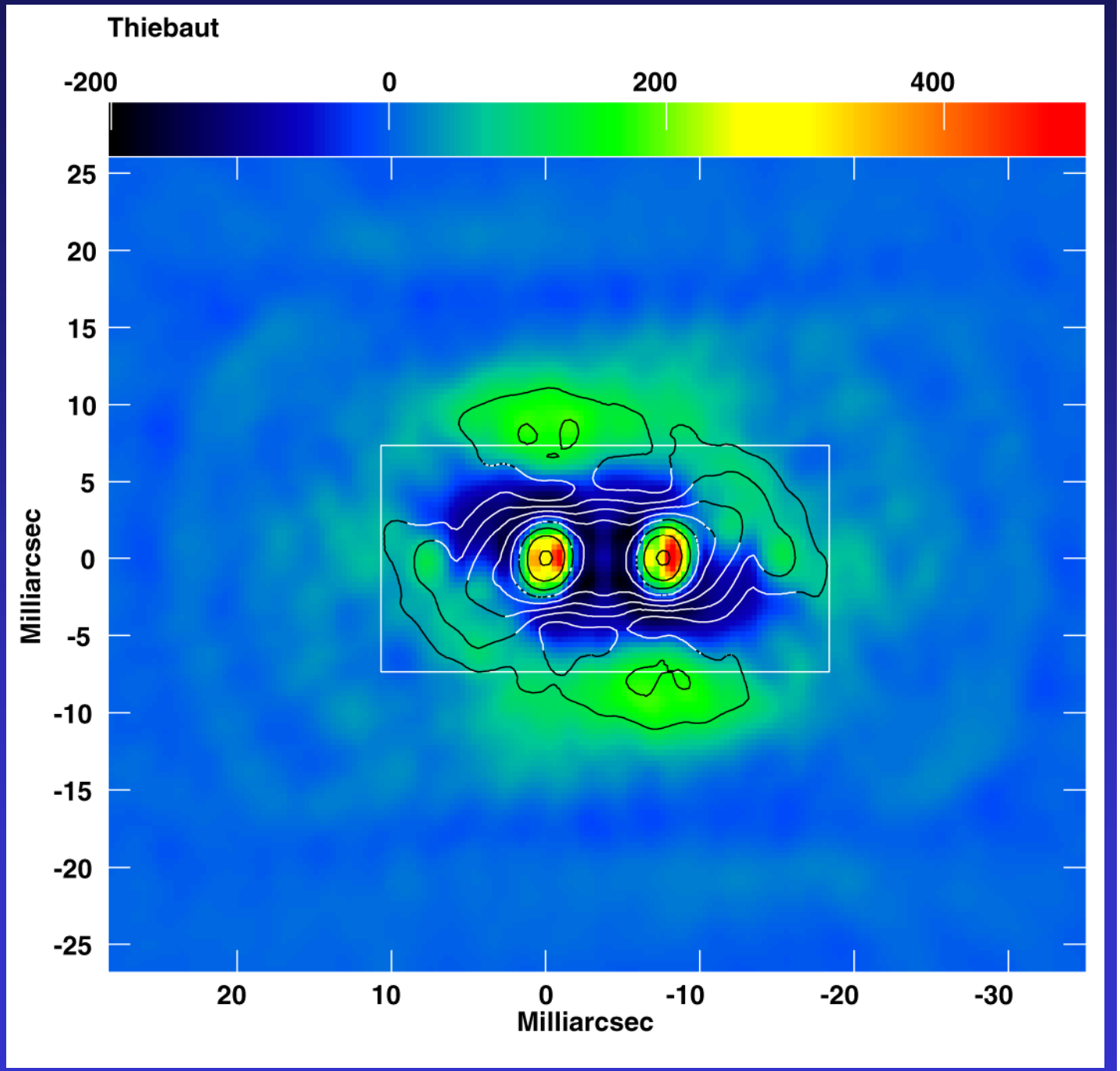
Florida.

MIRA

Eric Thiebaut
CRAL / Obs. de Lyon



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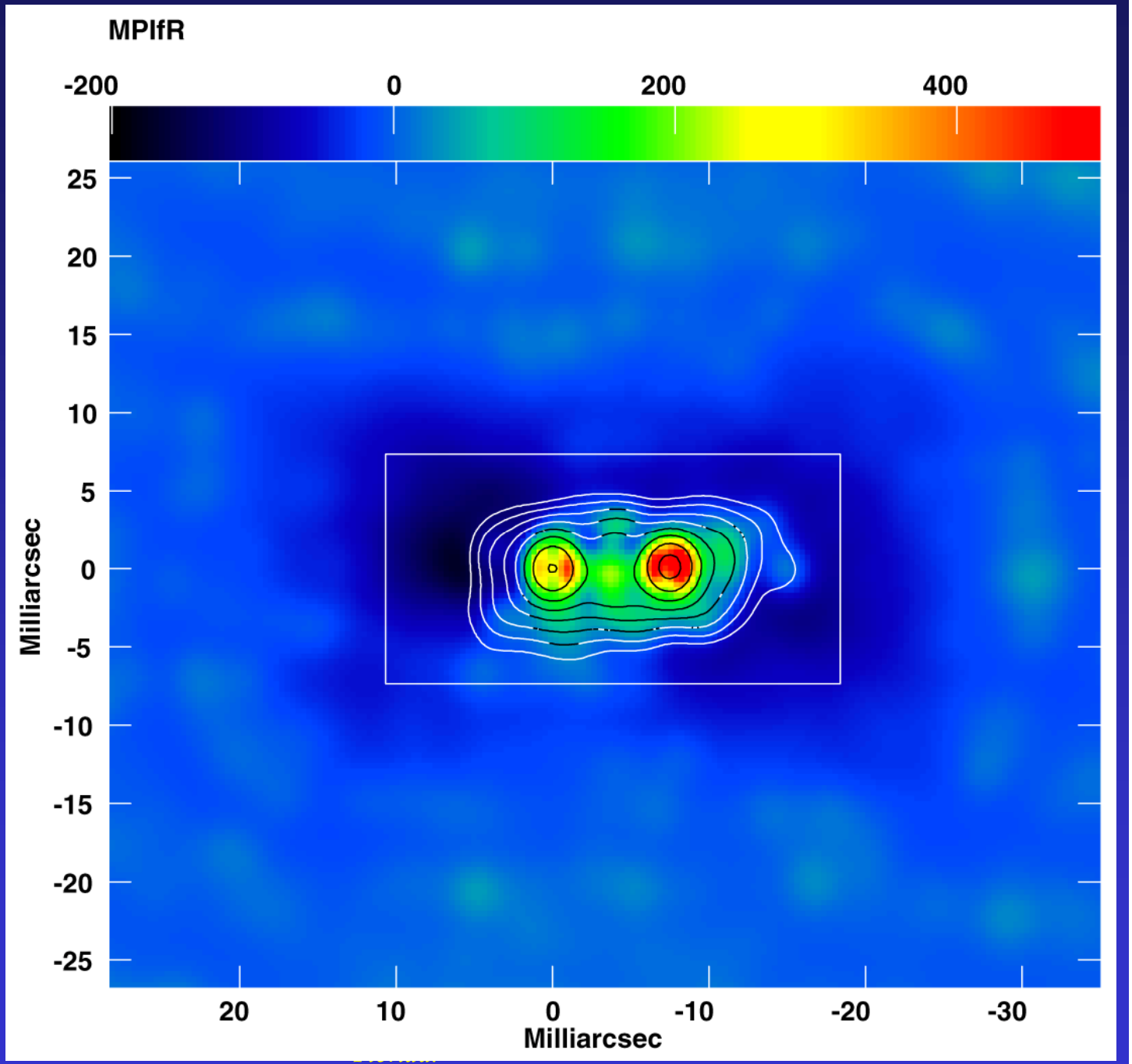
Building Block Method

Stefan Kraus
Karl-Heinz Hoffman
Gerd Weigelt

Max Planck Institute
for Radio Astronomy



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MACIM

Michael Ireland
(Caltech)

John Monnier
(Univ. Michigan)

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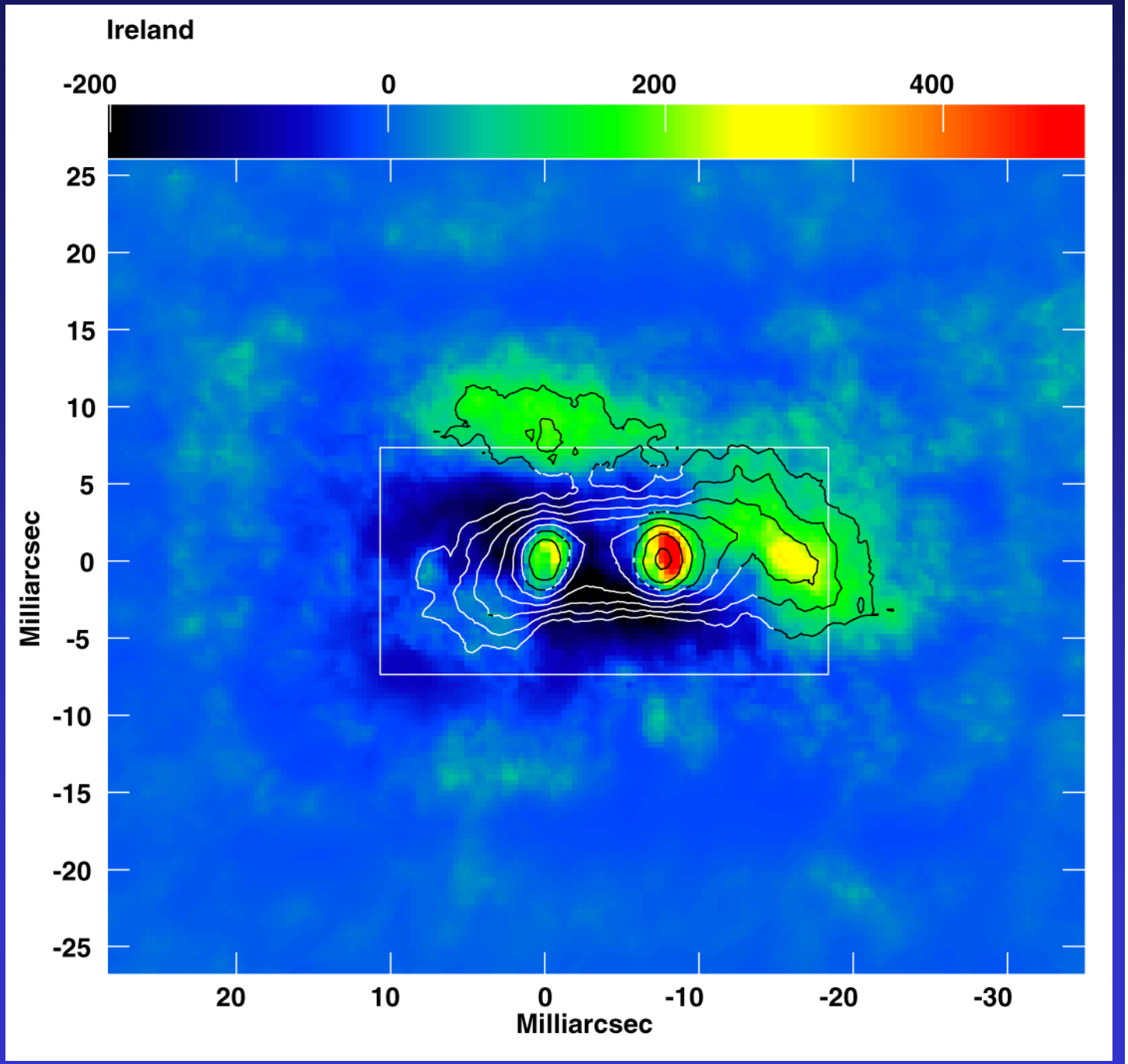

Recursive Phase Reconstruction

Sridharan Rengaswarmy

Space Telescope Science Institute

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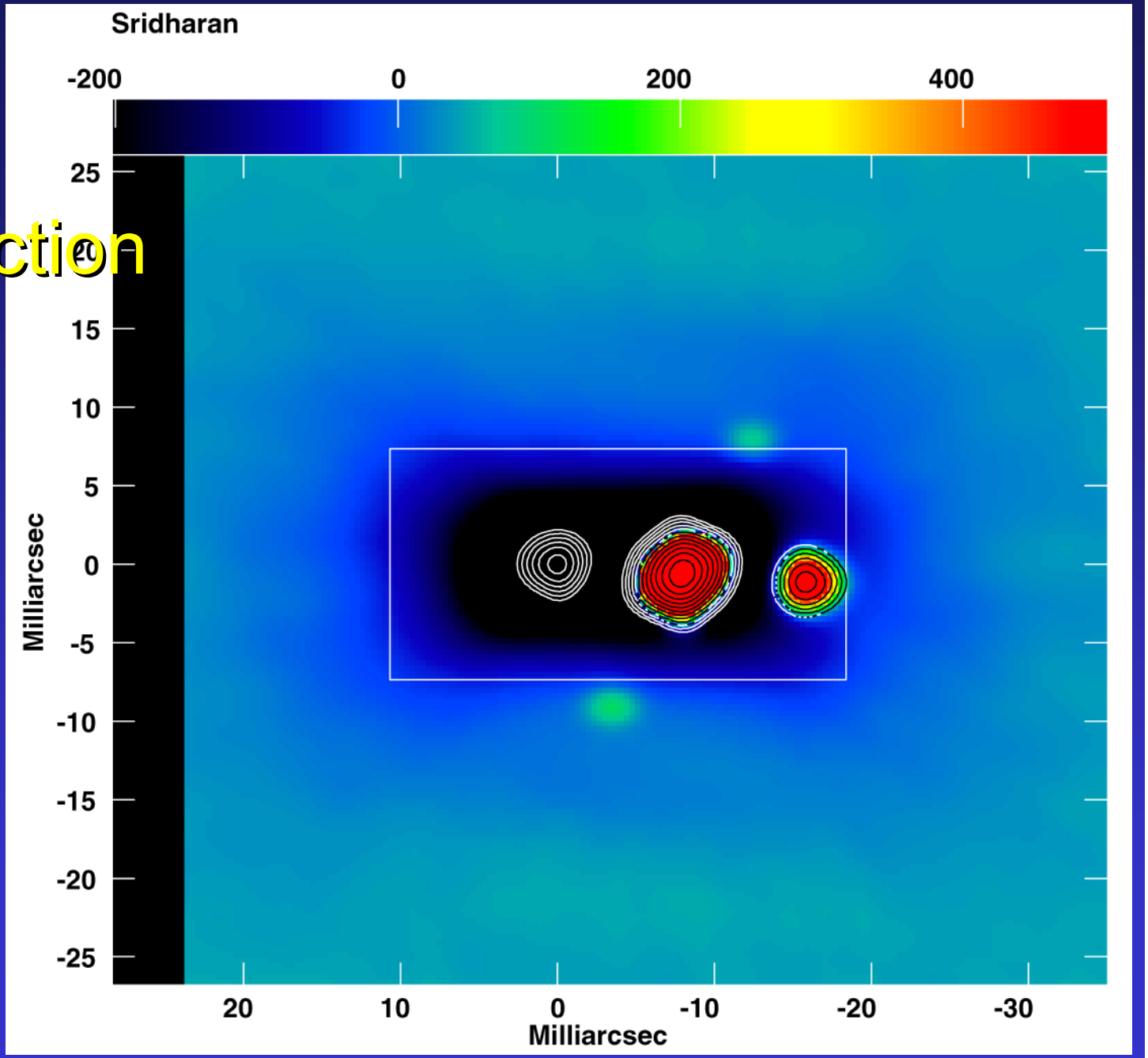

Rapport sur le concours de l'année 2006

Commissaires MM. Cotton, Hummel, Lawson rapporteur

Table 1. 2006 Imaging Beauty Contest Results

Entry	RMS
BSMEM	90.5
MIRA	97.2
Building Block Method	109.1
MACIM	114.7
Recursive Phase Reconstruction	885.73

IAU Working Group on Optical/IR Interferometry

Be it known that

Fabien Baron and John S. Young

for their entry entitled

BSMEM

have been admitted under the authority of the
Scientific Organizing Committee of the Working Group
to the title of Grand Champions of the

2006 Interferometry Imaging Beauty Contest

with all the dignities and privileges pertaining thereto.
In witness whereof the seal of the Working Group and
the signatures of the duly authorized officials are hereby affixed
at Orlando, Florida, this twenty nineth day of May, 2006.

_____
Commissaire

_____
Rapporteur

_____
Commissaire

Acknowledgements

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